CONTENTS OF VOLUME 30

Number 1

F. Hanisch, P. Maier, S. Okada and H. Schönbacher — 1 Effects of radiation types and dose rates on selected cable-insulating materials

E. G. Larson, D. S. Spencer, T. E. Boettcher, M. A. Melbauer and R. P. Skarjune — 11 Properties of radiation cured coatings

Masakazu Furuta, Yasushi Hosokawa, Shin'ichi Fujita, Yoshio Nagata, Tadashi Katayama, Nobuyuki Shiomi, Hirokazu Toratani and Atsuhiko Takeda — 17 Mutagenicity test of gamma-irradiated humus in aqueous solution for the safety evaluation of irradiated water

Manmohan Kumar, M. H. Rao and K. N. Rao — 21 Radiation polymerisation of cyclohexyl methacrylate—I

Manmohan Kumar, M. H. Rao and K. N. Rao — 27 Radiation polymerisation of cyclohexyl methacrylate—II. Role of ionic and radical scavengers

Andrzej Plonka — 31 Kinetics of geminate ion recombination in liquid cyclohexane

Shulamith Schlick — 33 Study of dynamics and spin lattice relaxation mechanism in the triphenylmethylperoxy radical using peroxy spin probes

Masaru Yoshida, Masaharu Asano, Isao Kaetsu and Yasushi Morita — 39 Characteristics of polymer microspheres prepared by radiation-induced polymerization in the presence of organic solvents

Zhang Zhicheng, Yasuo Ito, Masakazu Washio and Yoneho Tabata — 47 Mechanism of positronium formation in mixtures of fluorinated benzenes and *n*-hexane

K. Sahul — 51 Radiolytic reduction of ferricethylenediaminetetraacetate in aqueous solution

S. F. Patil and A. G. Bedekar — 55 Effect of band gap energies of oxides on the radiolysis of strontium nitrate in an admixture

E. Bjergbakke, S. Navaratnam, B. J. Parsons and A. J. Swallow — 59 A quantitative description of the action of high-dose pulses of radiation on aerated acid solutions containing ferrous and chloride ions

Yu. N. Kostrubov, B. V. Andreev, V. V. Gromov and L. G. Karaseva — 63 Exciton–phonon mechanism of the dose rate effect in dielectrics with soft optical phonons

Letter to the Editors

A. Charlesby, Lj Novaković and O. Gal — 67 Memory effect in irradiated polymers

69 *Announcement*

Number 2

Yu. A. Berlin and Robert Schiller — 71 Number of atoms interacting with a quasi-free electron in nonpolar liquids

M. Tachiya — 75 Theory of delayed geminate recombination

Y. Yoshida, S. Tagawa, H. Kobayashi and Y. Tabata — 83 Study of geminate ion recombination in a solute–solvent system by using picosecond pulse radiolysis

Kenji Gotoh, Tetsuo Miyazaki, Kenji Fueki and Kwang-Pill Lee — 89 ESR study of radiolysis of solid rare gas–alkane mixtures at 4.2 K. Ionic fragmentation and initial energy of hot H atoms

S. S. Bhagawan, B. Kuriakose and S. K. De — 95 Mechanical properties and failure surfaces of gamma-ray irradiated systems based on thermoplastic 1,2 polybutadiene

Lian C. T. Shoute and Jai P. Mittal — 105 Absorption and conductivity studies on the transients generated in the gamma-radiolysis of perfluorobenzene in rigid matrices

Lj. Novaković, O. Gal and V. T. Stannett — 113 Viscoelastic behaviour of stabilized polyethylenes irradiated with gamma rays

S. Čechová, F. Macášek and R. Čech — 119 Radiation yields of phenol derivatives in nitrobenzene–water systems

Peter Clifford, Nicholas J. B. Green, Michael J. Pilling, Simon M. Pimblott and William G. Burns — 125 Hydrogen and hydrogen peroxide yields in the radiolysis of water: a comparison of stochastic and deterministic kinetic models

J. Piekarska-Gołębiowska, Cz. Stradowski and J. Kroh — 133 Electron trapping in triethylamine–ethanol glassy solids

Hari Mohan, R. M. Iyer and P. N. Bajaj — 137 Matrix isolation study of transients produced on gamma-radiolysis of phenyl cyclohexane in organic glasses at 77 K

Hiroyuki Hagiwara, Sadashi Sawamura, Takashi Sumiyoshi and Meiseki Katayama — 141 Pulse radiolysis study of transient species in LiCl–KCl melt

145 *Erratum*

Number 3

M. Tabata, J. Sohma, W. Yang, K. Yokota, H. Yamaoka and T. Matsuyama — 147 Magnetic resonance studies on cross-links in polyethylene and its model compound

H. Omichi and J. Okamoto — 151 Synthesis of complexing copolymers by the radiation-induced grafting method

Hirotomo Hase and Takenobu Higashimura — 157 Structure of electron traps in LiCl solutions studied by ESR

G. A. El-Shobaky, Th. El-Naberawy and A. M. Dessouki — 161 Adsorption properties of gamma-irradiated carbons

Jerzy L. Gębicki, Jerzy Gębicki and Józef Mayer — 165 Valence isomerization of quadricyclane–norbornadiene radical cations. Pulse radiolytic investigation

M. S. Nagar and P. R. Natarajan — 169 Studies on radiolytic oxidation of plutonium(III) in hydrochloric acid medium

S. F. Patil, A. G. Bedekar, P. L. Sheikh and S. V. Nigam — 173 Gamma ray decomposition of sodium chlorate and effect of oxides thereon

Lj. Novaković, O. Gal, A. Charlesby and V. T. Stannett — 177 Effect of dose on creep and recovery of polyethylene

D. Babic and V. T. Stannett — 183 Theoretical considerations of scission and endlinking reactions in irradiated polymers

K. Mariamma George, N. M. Claramma and E. V. Thomas — 189 Studies on graft copolymerization of methyl methacrylate in natural rubber latex induced by gamma radiation

E. Janata — 193 A circuit to generate trigger signals synchronous with the time base of a digital recording device

A. A. Garibov, Kh. B. Gezalov, R. D. Kasumov and **T. N. Agayev** 197 Radiation-induced heterogenous reactions in $BeO + H_2O$ using EPR

M. P. R. Waligorski, Kim Sun Loh and **R. Katz** 201 Inactivation of dry enzymes and viruses by energetic heavy ions

F. Abdel Rehim, F. I. A. Said, Abdel-Azim A. Abdel-Azim, M. M. El-Dessouky and **N. Youssef** 209 Use of bromothymol blue solutions as a spectrophotometric dosimeter

Liu Yu-Ming, Yang Yue-Qi and **Ma Zue-Teh** 215 Study on the preirradiation polymerization of vinyl monomers

221 *Book Review*

223 *Announcements*

Number 4

B. Vojnovic and **B. D. Michael** 225 Reduction of electromagnetic interference from pulsed radiation sources

Z. D. Draganic, A. Negron-Mendoza, R. Navarro-Gonzalez and **S. I. Vujosevic** 229 The presence of polymeric material in radiolysed aqueous solutions of ammonium bicarbonate

G. A. El-Shobaky, A. M. El-Shabiny, A. A. Ramadan and **A. M. Dessouki** 233 Effect of gamma irradiation on microstrain and lattice parameter of Co_3O_4 loaded on Al_2O_3

N. B. El-Assy and **A. M. Dessouki** 237 Radiation initiated grafting onto fluoro polymers for membrane preparation

B. B. Radak, W. L. McLaughlin, M. G. Simic and **W. Warasawas** 243 Dosimetry of steady-state gamma rays or pulsed X rays using liquid-core optical waveguides

Shoji Noda, Haruo Doi and **Osami Kamigaito** 253 Metal–ceramic surface composites formed by a high energy ion irradiation and their mechanical properties

Isao Kaetsu and **Minoru Kumakura** 263 Immobilization of enzyme and antibody by low energy electron beam polymerization

T. Mukherjee, B. Cercek, N. J. F. Dodd and **A. J. Swallow** 271 Determination of the ionic charge of semiquinones by pulsed conductivity and ESR techniques

Hiroshi Yamaguchi 279 A prescribed diffusion model of a many-radical system considering electron track structure in water

Håkon Theisen, Einar Sagstuen, Gösta Nilsson and **Anders Lund** 285 Primary radiation damage in tryptophan and tryptamine. A pulse-radiolysis and low-temperature ESR study

V. Múčka 293 Influence of ionizing radiation on the catalytic properties of oxide catalysts tested by hydrogen peroxide decomposition

Zhang Zhi-Ping, Shi He-Ping and **Wu Yi-Ming** 303 ^{13}C NMR method of investigation in the stereochemical structure of methyl methacrylate by radiation-induced polymerization

Zhang Zicheng, Li Qian, Li Donghui, Zhao Xin, Li Shuhua and **Zhang Lihua** 307 Preparation of polyacrylamide hydrogels by radiation technique

Letter to the Editors

J-P. Jay-Gerin, C. Ferradini, C. Houée-Levin, J-M. Lopez-Castillo and **M. Faraggi** 309 Long-range electron transfer in proteins: a percolation mechanism

311 *Corrigendum*

Number 5/6

INTER-RELATIONSHIPS BETWEEN RADIATION PHYSICS AND CHEMISTRY AND RADIOBIOLOGY

G. E. Adams	V	Preface
B. B. Singh	VII	Editorial
Clemens von Sonntag	313	Pulse radiolysis of nucleic acids and their base constituents: an updating review
Clemens von Sonntag and **Alberta B. Ross**	331	Pulse radiolysis of nucleic acids and their base constituents: bibliographies on radiation chemistry. XI
A. W. T. Konings	339	Effects of heat and radiation on mammalian cells
Milton B. Yatvin and **Mary A. Grummer**	351	Membrane structure and radiation and hyperthermic damage
C. A. Chuaqui and **A. Petkau**	365	Chemical reactivity and biological effects of superoxide radicals
Giulio Jori	375	Photodynamic therapy of solid tumors
Ionel Rosenthal and **Peter Riesz**	381	Electron spin resonance and spin-trapping studies of radiation damage in biologically significant molecules
G. J. Köteles, Z. Somosy and **Tamara Kubasova**	389	Radiation-induced changes on cell surface charges
Jacques Piette and **Albert van de Vorst**	401	DNA strand breakage induced by photosensitization
M. Quintiliani	409	Physico-chemical basis of radiosensitization by iodine compounds
Peter Wardman	423	The mechanism of radiosensitization by electron-affinic compounds